

AMENDMENT

Claim 1 (Presently Amended): A process for the production of a β -lactam, comprising the steps of:

- a) fermenting on a volume scale of at least 10 m^3 , a microbial strain that produces a β -lactam in a fermentation medium which ~~utilizes~~ contains only chemically defined components as carbon and nitrogen sources and contains no complex raw materials, and
- b) recovering the β -lactam from the fermentation medium.

Claim 2 (Cancelled)

Claim 3 (Previously amended): The process of claim 1, wherein the chemically defined components comprise a carbon source selected from the group consisting of glucose, lactose, fructose, sucrose, a maltodextrin, starch inulin, glycerol, a vegetable oil, a hydrocarbon, an alcohol, an organic acid, and/or a nitrogen source selected from the group consisting of urea, ammonia, nitrate, an ammonium salt and an amino acid.

DI Claim 4 (Previously presented): The process of claim 3, wherein the carbon source is glucose and the nitrogen source is ammonia and/or an ammonium salt.

Claim 5 (Previously amended): The process of claim 1, wherein said fermenting is via a batch, a repeated batch, a fed-batch, a repeated fed-batch or a continuous fermentation process.

Claim 6 (Previously amended): The process of claim 5, wherein fermenting is via a fed-batch process.

Claim 7 (Previously presented): The process of claim 6, wherein a carbon and/or a nitrogen source is fed to the process.

Claim 8 (Previously presented): The process of claim 7, wherein the carbon source is glucose and the nitrogen source is ammonia and/or an ammonium salt.

Claims 9-14 (Cancelled)

Claim 15 (Previously amended): The process of claim 1, wherein the microbial strain is a filamentous microbial strain.

Claim 16 (Previously presented): The process of claim 15, wherein the filamentous strain is a fungus.

Claims 17-18 (Cancelled)

Claim 19 (Previously presented): The process of claim 16, wherein the fungus is a *Penicillium* strain.

Claim 20 (Previously amended): The process of claim 19, wherein the fungus is *Penicillium chrysogenum*.

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Claims 21-35 (Cancelled)

Claim 36 (Previously added): The process of claim 19 wherein the β -lactam is penicillin V.

Claim 37 (Previously added): The method of claim 19 wherein the β -lactam is adipoyl-7-ADCA.

Claim 38 (New): A process for the production of a β -lactam, comprising the steps of:

a) fermenting on a volume scale of at least 10 m^3 , a microbial strain that produces a β -lactam in a fermentation medium which contains only chemically defined components as carbon and nitrogen sources and contains no complex raw materials, and

b) recovering the β -lactam from the fermentation medium,

wherein the microbial strain is a mutated or recombinant β -lactam producing strain that is capable of being fermented on said volume scale and that has been selected for improved

performance on the medium and/or increased β -lactam production in comparison to a parent strain.

Claim 39 (New): A process for the production of a β -lactam, comprising the steps of:

a) fermenting on a volume scale of at least 10 m^3 , a microbial strain that produces a β -lactam in a fermentation medium which contains chemically defined components and a complex carbon and/or nitrogen source which is less than 10% of the total carbon and/or nitrogen sources in the medium, and

b) recovering the β -lactam from the fermentation medium,
wherein the microbial strain is a ~~mutated or recombinant~~ β -lactam producing strain that is capable of being fermented on said volume scale and that has been selected for improved performance on the medium and/or increased β -lactam production in comparison to a parent strain.

DI Claim 40 (New): The process of claim 38, wherein the chemically defined components comprise a carbon source selected from the group consisting of glucose, lactose, fructose, sucrose, a maltodextrin, starch inulin, glycerol, a vegetable oil, a hydrocarbon, an alcohol, an organic acid, and/or a nitrogen source selected from the group consisting of urea, ammonia, nitrate, an ammonium salt and an amino acid.

Claim 41 (New): The process of claim 40, wherein the carbon source is glucose and the nitrogen source is ammonia and/or an ammonium salt.

Claim 42 (New): The process of claim 38, wherein said fermenting is via a batch, a repeated batch, a fed-batch, a repeated fed-batch or a continuous fermentation process.

Claim 43 (New): The process of claim 42, wherein fermenting is via a fed-batch process.

Claim 44 (New): The process of claim 43, wherein a carbon and/or a nitrogen source is fed to the process.

Claim 45 (New): The process of claim 44, wherein the carbon source is glucose and the nitrogen source is ammonia and/or an ammonium salt.

Claim 46 (New): The process of claim 38, wherein the microbial strain is a filamentous microbial strain.

Claim 47 (New): The process of claim 46, wherein the filamentous strain is a fungus.

Claim 48 (New): The process of claim 47, wherein the fungus is a *Penicillium* strain.

DI Claim 49 (New): The process of claim 48, wherein the fungus is *Penicillium chrysogenum*.

Claim 50 (New): The process of claim 48 wherein the β -lactam is penicillin V.

Claim 51 (New): The method of claim 48 wherein the β -lactam is adipoyl-7-ADCA.

Claim 52 (New): A process for the production of a β -lactam, comprising the steps of:

- a) fermenting on a volume scale of at least 10 m^3 , a microbial strain that produces a β -lactam in a fermentation medium which contains only chemically defined components as carbon and nitrogen sources and contains no complex raw materials, and
- b) recovering the β -lactam from the fermentation medium,
wherein the chemically defined components comprise a carbon source selected from the group consisting of glucose, lactose, fructose, sucrose, a maltodextrin, starch inulin, glycerol, a

vegetable oil, a hydrocarbon and/or a nitrogen source selected from the group consisting of urea, ammonia, nitrate, an ammonium salt and an amino acid.

Claim 53. (New): The process of claim 52, wherein the carbon source is glucose and the nitrogen source is ammonia and/or an ammonium salt.

Claim 54 (New): (Amended 10/17/01) The process of claim 52, wherein said fermenting is via a batch, a repeated batch, a fed-batch, a repeated fed-batch or a continuous fermentation process.

Claim 55 (New): The process of claim 54, wherein fermenting is via a fed-batch process.

Claim 56 (New): The process of claim 52, wherein a carbon and/or a nitrogen source is fed to the process.

DI Claim 57 (New): The process of claim 56, wherein the carbon source is glucose and the nitrogen source is ammonia and/or an ammonium salt.

Claim 58 (New): The process of claim 52, wherein the microbial strain is a filamentous microbial strain.

Claim 59 (New): The process of claim 58, wherein the filamentous strain is a fungus.

Claim 60 (New) The process of claim 59, wherein the fungus is a Penicillium strain.

Claim 61 (New): The process of claim 60, wherein the fungus is Penicillium chrysogenum.

Claim 62 (New): The process of claim 59 wherein the β -lactam is penicillin V.

Claim 63 (New): The method of claim 59 wherein the β -lactam is adipoyl-7-ADCA.

DI Claim 64 (New): A process for the production of a β -lactam, comprising the steps of:

- a) fermenting on a volume scale of at least 10 m³, a microbial strain that produces a β -lactam in a fermentation medium which contains chemically defined components and a complex carbon and/or nitrogen source which is less than 10% of the total carbon and/or nitrogen sources in the medium, and
 - b) recovering the β -lactam from the fermentation medium.
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